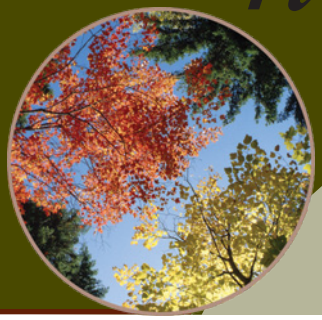
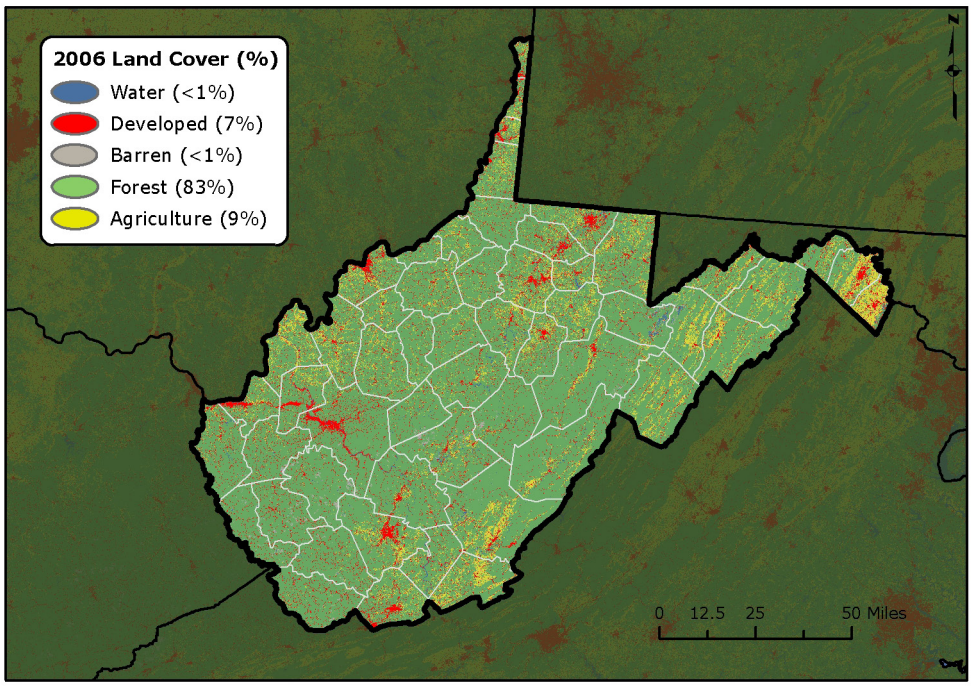
2011 Forest Health highlights

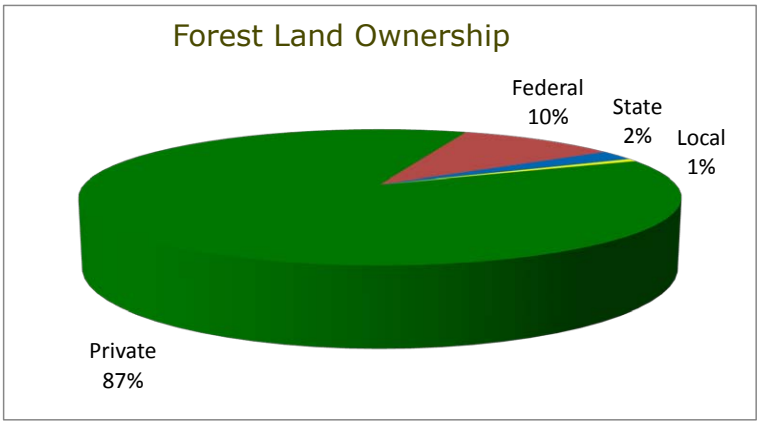
WEST VIRGINIA



The Resource

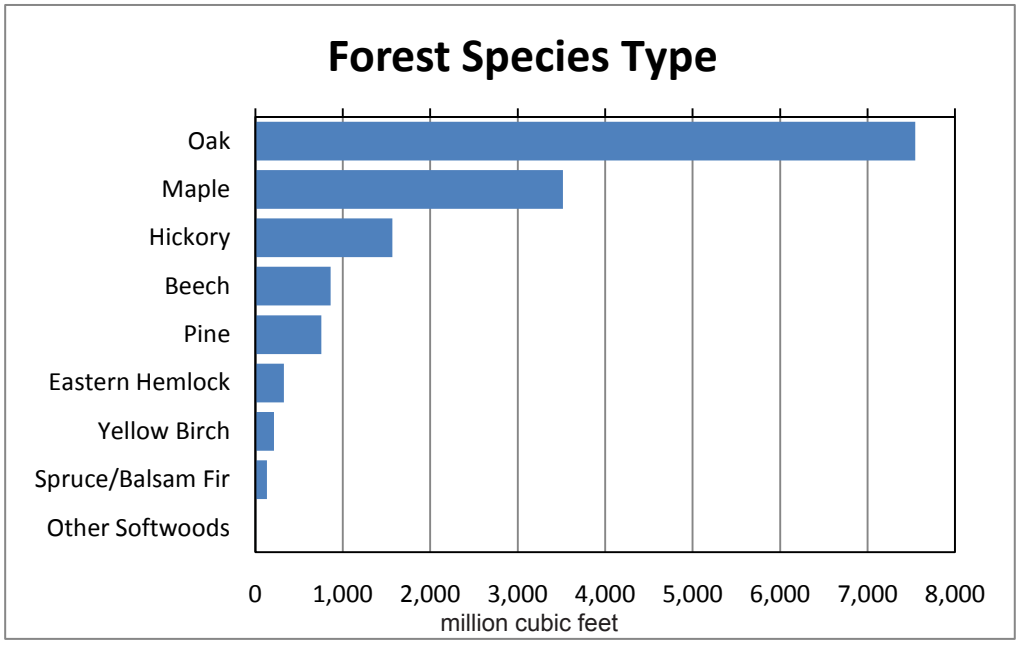
The West Virginia landscape is dominated by more than 11.8 million acres of forest. Due in large part to its varied topography, the forest is a rich diversity of oaks, hickories, spruce, pines, and the West Virginia State Tree—sugar maple. Ninety percent of all forests in West Virginia are privately owned, but there are 9 State forests, 36 State parks, and 56 wildlife management areas that provide public enjoyment.





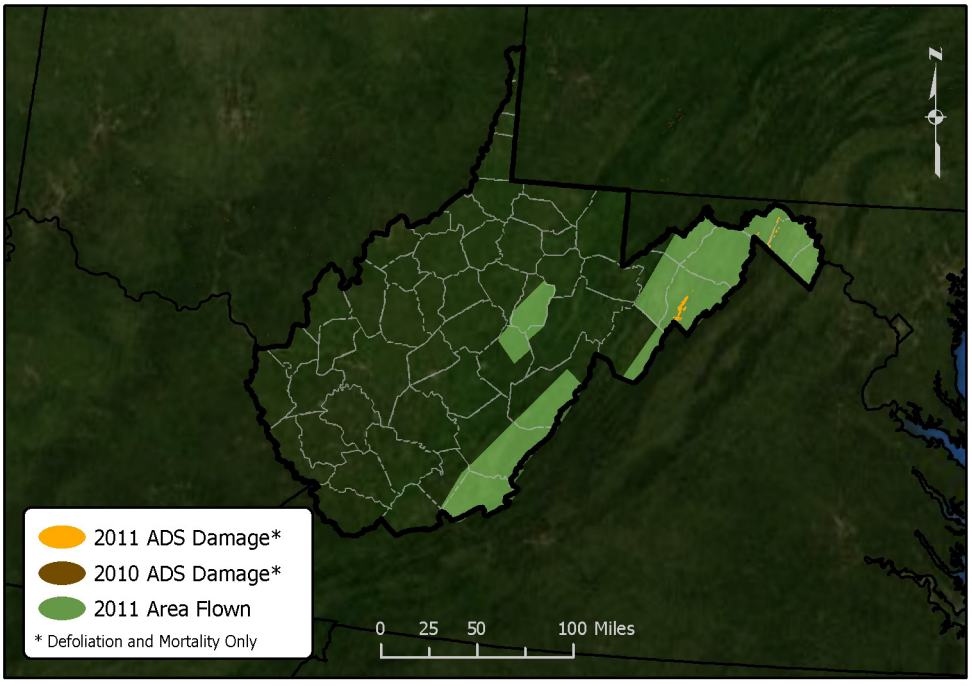
Forest Health Programs

State forestry agencies work in partnership with the U.S. Forest Service to monitor forest conditions and trends in their State and respond to pest outbreaks to protect the forest resource.



Aerial Surveys

Of the West Virginia counties that were flown in the 2011 aerial detection survey, loopers damaged 10,995 acres.



This map delineates aerial detection survey (ADS) results for West Virginia in 2011 and 2010.

Forest Stewardship

The Forest Stewardship Program is administered by the West Virginia Division of Forestry. The intent of the program is to help private, nonindustrial forest landowners improve their forests by managing them in a sound, scientific manner. In West Virginia, the Forest Stewardship Program includes having a forest management plan written by a professional forester as well as financial assistance for recreation, forest improvement, soil and water protection, wetlands protection, fisheries habitat enhancement, wildlife habitat enhancement, tree planting, and improvement of forest roads. From 1990 through June 30, 2010, there have been 4,802 stewardship plans written in West Virginia; these plans have covered 778,465 acres of private forest lands.

Gypsy Moth Program

The objectives of the West Virginia Department of Agriculture (WVDA) Gypsy Moth Program are to continue to minimize the adverse impact [of gypsy moth] on forest resources, preserve aesthetic values, protect people from the annoyance and health problems that can occur when in contact with large numbers of gypsy moth caterpillars, and slow the spread of gypsy moth by reducing populations on the advancing front.

Gypsy Moth Quarantine

West Virginia currently has 39 counties that are regulated and considered generally infested with gypsy moth. The West Virginia Department of Agriculture (WVDA) regulates the movement of articles out of these counties into nonquarantined counties or States. There were no new counties quarantined in West Virginia in 2011, and the WVDA does not expect any additional counties to be quarantined in 2012.

Gypsy Moth Population

West Virginia's gypsy moth population in 2011 has remained low due to a collapse primarily caused by the fungus *Entomophaga maimaiga* in 2009 and continued cool, wet springs in 2010 and 2011. In 2012, potential defoliating populations may occur in the Eastern Panhandle of West Virginia and in the southeastern counties of Monroe and Greenbrier as populations begin to increase.

Gypsy Moth Cooperative State County Landowner Program

WVDA staff members have been responding to landowner requests and completing surveys on forested lands in West Virginia to determine areas at risk for gypsy moth defoliation and/or mortality in the spring of 2012. Staff members used 1/40-acre plot surveys to determine areas at risk and planned to have surveys completed by late December 2011. As of this writing, staff members had completed about half of the 200,000 plus acres requested to be surveyed and had only found three small areas that may present problems in 2012.

No larval insecticide treatments were made in the Cooperative State County Landowner Program in 2011. As of this writing, no treatments are proposed for 2012.

Gypsy Moth Regulatory Suppression

There were no regulatory insecticide treatments in West Virginia in 2011.

Staff members visited 229 sites to investigate the movement of articles capable of transporting the gypsy moth into uninfested areas. Staff members conducted five inspections at vehicle weigh stations along interstate highways to enforce State and Federal gypsy moth quarantines.

Gypsy Moth Slow the Spread Program

There were no Slow the Spread (STS) treatments in West Virginia in 2011. The WVDA and U.S. Forest Service plan to treat approximately 46,801 acres in Mercer and McDowell Counties (West Virginia) with pheromone flakes in 2012.

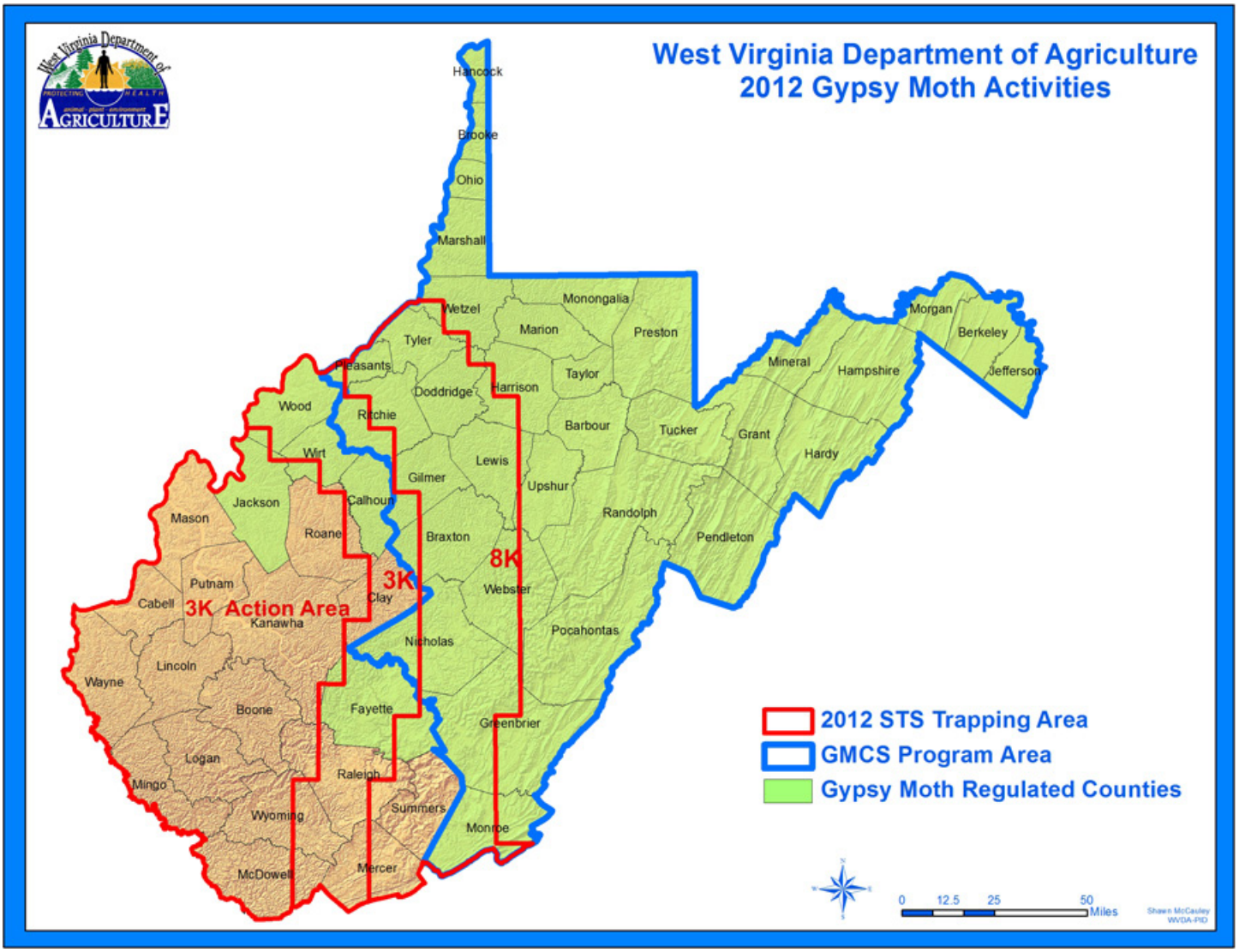
Gypsy moth populations are on the rise in the STS program areas in West Virginia. The WVDA trapped 49,655 male gypsy moths in 2011 compared to 16,573 male moths in 2010.

Traps by Trapping Grid

Grid	Proposed	Omits	Set
500m	131	7	124
1k	251	8	243
2k	4,079	12	4,067
3k	888	0	888
8k	208	0	208
Totals	**5,557**	**27**	**5,530**

Project Boundary	Proposed	Omits	Set
STS Action Area	4,461	27	4,434
STS Monitoring	1,096		1,096
Random	0	0	0
Totals	**5,557**	**27**	**5,530**

Trap Type	Proposed	Omits	Set
Delta Traps	4,461	27	4,255
Milk Cartons	1,096	0	1,096
Random	0	0	0
Totals	**5,557**	**27**	**5,530**



West Virginia Department of Agriculture 2011 gypsy moth activities.

Forest Health Protection Programs

Diseases

Phytophthora ramorum *Laboratory Provisional Approval Program*

Personnel from the WVDA, Plant Industries Division, PCR Laboratory participated again in the United States Department of Agriculture-Animal and Plant Health Inspection Service-Plant Protection Quarantine (USDA-APHIS-PPQ) *Phytophthora ramorum* Laboratory Provisional Approval Program. Lab personnel were administered the proficiency panel in April and were notified in April that they had passed the test panel. The lab and its personnel are provisionally approved for 2011 to perform validated diagnostic tests for *Phytophthora ramorum* on behalf of the USDA-APHIS-PPQ programs.

Phytophthora ramorum *Early Detection Survey for Forests - Stream Baiting*

This is the sixth year of stream baiting for early detection of *Phytophthora ramorum* and detection of other *Phytophthora* species in a stream environment using bait leaves. The U.S. Forest Service launched a pilot survey in 2006.

Three of the four streams chosen for stream baiting were in the same watershed as a Trace Forward Nursery. The other stream was in a watershed that contained a nursery that was considered an unofficial Trace Forward Nursery. This provided locations where baiting could be carried out downstream of these nurseries.

Six out of six baiting periods will be completed. Three baiting periods were completed in the spring [of 2011] and the other three will be completed in the fall [of 2011].

Culturing (WVDA) and Real-Time PCR (Pennsylvania Department of Agriculture) were used to detect *P. ramorum*. Culturing was used to detect general *Phytophthora* species and ELISA was used to corroborate culturing results. *P. ramorum* was not detected in any of the bait leaves sampled or cultured. *Phtyophthora* species were recovered 100 percent of the time for all of the baiting periods.

Select streams were baited with leaves to detect Phytophthora ramorum.

Beech Scale

- Resistance Survey: Stands of beech containing about 15-20 scale-free trees greater than 9 inches d.b.h. are being located in areas of heavy scale infestation and beech mortality.
- Challenges (introducing the scale insect to test resistance):
  - ◇ Putatively resistant trees are being challenged by eggs of the scale insect.
  - ◇ In one year, the trees will be evaluated to determine if the scale hatched, fed, reproduced, and established a colony on the beech.
  - ◇ If the scale did not reproduce and colonize the challenged trees, scions will be collected and sent to Jennifer Koch, U.S. Forest Service Northern Research Station, Delaware, OH, for grafting to beech root stock. Further testing of resistance will be conducted.
  - ◇ The goal is to develop resistant seedlings and establish a beech seed orchard.

Beech trees are challenged by scale.

Bacterial Leaf Scorch

In 2011, bacterial leaf scorch (BLS) was detected in **Grant** and **Hampshire Counties** on red oak and pin oak, respectively. Currently, nine hosts are found associated with BLS in West Virginia. BLS is now found in 15 counties. Samples were processed by the WVDA Plant Pathology Lab using ELISA.

Caliciopsis Canker of White Pine

In spring 2011, a noticeable decline in white pine was noted in the eastern part of the State. Caliciopsis canker of white pine (*Caliciopsis pinea*) was identified as the cause of this decline. Not a lot is known or understood about this fungus. It is thought to be a weak perennial fungus that attacks thin-barked areas of the branch and bole. It is thought that a scale insect (*Matsucoccus* sp.) causes the initial damage, weakening the tree to such an extent that common opportunistic fungi (i.e., *C. pinea*) are able to invade and cause further decline.

In West Virginia, pine canker does appear to be causing mortality in saplings. In areas with mature white pines, increased crown transparency and reduced crown density of infected trees suggests that tree vigor is being reduced by heavy infections of this disease. To date, *C. pinea* has been found in eight counties in West Virginia, six of which border Virginia. These counties include **Greenbrier**, **Hampshire**, **Hardy**, **Mineral**, **Monroe**, **Pendleton**, **Pocahontas**, and **Randolph**.

Caliciopsis canker on a young white pine.

Thousand Cankers Disease Survey

This survey began in West Virginia in August 2011. As of this writing, 41 counties have been surveyed, including **Berkeley**, **Calhoun**, **Doddridge**, **Gilmer**, **Grant**, **Greenbrier**, **Hancock**, **Hampshire**, **Hardy**, **Harrison**, **Jackson**, **Jefferson**, **Kanawha**, **Lewis**, **Marion**, **Marshall**, **Mineral**, **Monongalia**, **Morgan**, **Nicholas**, **Ohio**, **Pendleton**, **Pleasants**, **Pocahontas**, **Preston**, **Putnam**, **Raleigh**, **Randolph**, **Ritchie**, **Roane**, **Summers**, **Taylor**, **Tucker**, **Tyler**, **Upshur**, **Wayne**, **Webster**, **Wetzel**, and **Wood**. The survey emphasized urban areas, campgrounds, day-use areas, industrial parks, riparian areas, and other sites. Counties were prioritized based on tree counts from the U.S. Forest Service Forest Inventory and Analysis data of black walnut for the Mid-Atlantic States.

Insects

Hemlock Woolly Adelgid

With a new detection in Wayne County, hemlock woolly adelgid (HWA) can now be found in 40 West Virginia counties. In 2011, approximately 1,200 *Laricobius nigrinus* adult beetles were released in Coonskin Park in Kanawha County and Pipestem Resort State Park within the Bluestone National Scenic River. Personnel monitored previous release sites of *L. nigrinus* for survival of the predatory beetles and their impact on HWA. No recoveries were made thus far in 2011.

The WVDA continued to treat high-value and high-visibility infested hemlocks with imidacloprid via soil injection, insertion of CoreTect tablets into the soil, and trunk injection. Approximately 700 trees were treated at 21 sites: 14 State and 7 Federal.

Laricobius nigrinus *beetles were released to help control the hemlock woolly adelgid.*

Hemlock trees were treated via soil injection in May 2011 to combat the hemlock woolly adelgid.

Looper

(*Paleacrita vernata* or *Alsophila pometaria*)

A looper outbreak occurred in parts of **Hardy**, **Morgan**, and **Grant Counties**. These insect populations increase to large numbers from time to time and cause significant defoliation. Limited mortality was also seen in 2011.

Walkingstick

(*Diapheromera femorata*)

A walkingstick outbreak occurred in parts of Hampshire County for the first time in several years.

Emerald Ash Borer

With new detections of the emerald ash borer (EAB) in **Hancock**, **Brooke**, **Berkeley**, **Wirt**, **Gilmer**, **Kanawha**, **Clay**, **Webster**, **Mingo**, **Summers**, and **Greenbrier Counties**, this pest can now be found in 17 West Virginia counties. In 2011, APHIS released additional parasitoids (*Spathius agrili* and *Tetrastichus planipennisi*). Results of previous releases are still pending.

Forest Fire

In FY2011, Division of Forestry personnel and volunteers fought 682 wildfires that burned 14,532 acres. These fires caused $4.36 million in damage to the natural resources of West Virginia and over $93,000 in personal property loss. The number of fires and acreage burned was significantly lower than average, due in large part to a very wet spring. The leading causes of wildfires and corresponding percentage of acres burned were arson (48 percent), mine breaks (26 percent), and debris burning (13 percent).

References

Land Cover Map:
U.S. Geological Survey. 2011. 2006 National land cover dataset. Sioux Falls, SD.

Forest Land Ownership, Forest Species Type:
U.S. Department of Agriculture, Forest Service. 2009. Forest resources of the United States, 2007. Gen. Tech. Rep. WO–78. Washington, DC. 336 p.

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